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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/694,843 | 10/23/2000 | Srikanth Nataraian | 10004526-1 | 1015 |

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| EXAMINER | |
|---|---|
| EDELMAN, BRADLEY E | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2153 | 4 |

DATE MAILED: 07/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/694,843 | NATARAIAN ET AL. | |
| | Examiner | Art Unit | |
| | Bradley Edelman | 2153 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-9,13,14 and 16-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,13,14 and 16-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

This Office action is in response to Applicant's request for continued examination filed on April 22, 2004. Claims 1-9, 13, 14, and 16-18 are presented for examination.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Bakshi et al. (U.S. Patent No. 6,574,663, hereinafter "Bakshi").

In considering claim 1, Bakshi discloses a method for determining paths between a start node ("requesting device") and an end node ("active device offering the requested service") of a communication network (col. 4, lines 37-40), the network being formed of sub-networks (i.e. intranets, etc. constitute multiple connected devices that form a subnet), the sub-networks having connectors ("devices") and segments ("links"), the start node and end node each corresponding to one of the connectors (col. 2, lines 43-57), comprising:

Storing, in a topology database, information corresponding to connectors and segments of the communication network (col. 1, lines 50-59; col. 3, lines 58-61; col. 4, lines 30-33, describing the topology database);

Receiving, from an operator ("network management computer"), information corresponding to the start node and end node (col. 5, line 67 – col. 6, line 5);

Receiving, from the operator, information corresponding to a type of connector of interest (col. 4, lines 36-37, "selected link parameter"); and

In response to the information received, automatically determining a shortest path between the start node and the end node based upon the type of connector of interest by using only the information stored in the topology database (col. 4, lines 37-40; col. 5, lines 1-7, wherein the "topology server 120 can find an active device offering the requested service that has a shortest path to the requesting device based on the general topology map").

In considering claim 2, Bakshi further discloses that the method for determining the shortest path can include selecting a path with a lowest hop count ("hop count") between the start node and the end node (col. 1, lines 41-44, describing that hop count may be used to discover the shortest paths to be stored in the topology database).

In considering claim 14, claim 14 presents a computer program product for performing the same method described in claim 1. Thus, claim 14 is rejected for the same reasons as claim 1,

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3-9, 13, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bakshi et el. and Ahearn et al. (U.S. Patent No. 5,926,463, hereinafter "Ahearn").

In considering claims 3 and 16, although the system taught by Bakshi discloses that the network includes subnetworks, and further describes different level connectors used in the subnetworks (i.e. servers, routers, switches, and bridges, col. 1, lines 17-19), it does not describe in detail the specifics of the interconnections between the subnetworks and the different level connectors. Nonetheless, various layouts are possible, including the claimed features of level-2 and level-3 connectors connecting the subnetworks, as taught by Ahearn. In a similar art, Ahearn discloses a system for selecting a shortest path between two devices on a large network, wherein the large network includes subnetworks ("subnets"), and wherein each of the sub-networks has at least one level 2 connector ("switch"), each of the sub-networks being configured to intercommunicate with another of the sub-networks via a level 3 connector ("router") (Fig. 8), and wherein receiving information corresponding to a type of connector of interest comprises information corresponding to at least one of: level 2 and level 3

connectors, and level 3 connectors (col. 7, lines 63-67; col. 13, lines 40-46, wherein the user can select to view only routers ("layer 3"), only switches ("layer 2"), or a combination of the two (i.e. Fig. 8)).

Given the teaching of Ahearn, a person having ordinary skill in the art would have readily recognized the desirability and advantages of using the topology database and path discovery system taught by Bakshi in a network such as the one taught by Ahearn, so that large, multi-layer networks and subnetworks can be easily analyzed and can easily communicate by simply looking up a database, thereby avoiding the need to access the network devices each time a connection or analysis is desired. Therefore, it would have been obvious to use the lookup system taught by Bakshi for a network such as the one taught by Ahearn.

In considering claim 4, Ahearn further discloses that if the type of connectors selected are level 3 connectors, determining the path between the two nodes comprises:

Identifying sub-networks associated with the start node; and determining whether the end node is associated with at least one of the identified sub-networks (col. 12, lines 13-21, wherein the system "perform[s] a Ping Spray on respective subnet to find all nodes" and "learn[s] new Routers and their associated Networks"). It would have been obvious to include this feature in the system taught by Bakshi and Ahearn to better monitor and identify the available nodes within the network system.

In considering claim 5, Ahearn further discloses that if the type of connectors are level 2 and level 3 connectors, determining a path between the start node and the end node comprises:

Identifying segments associated with the start node; and determining whether the end node is associated with at least one of the identified segments (col. 13, lines 40-59, further describing the "ping" test for layer 2 devices). It would have been obvious to include this feature in the system taught by Bakshi and Ahearn to better monitor and identify the available nodes within the network system.

In considering claims 6 and 17, Ahearn further discloses if the end node is not associated with at least one of the identified sub-networks, recursively identifying sub-networks associated with each of the previously identified sub-networks; and determining whether the end node is associated with at least one of the sub-networks associated with each of the previously identified sub-networks (col. 12, lines 13-21, 23-49, wherein each new router and associated network is scanned and identified for purposes of determining path information). It would have been obvious to include this feature in the system taught by Bakshi and Ahearn to better monitor and identify the available nodes within the network system.

In considering claims 7 and 18, Ahearn further discloses if the end node is not associated with at least one of the segments, recursively identifying segments associated with each of the previously identified segments; and determining whether the

end node is associated with at least one of the segments associated with each of the previously identified segments (col. 14, line 49 – col. 15, line 19, wherein each hop is traversed to determine which nodes are connected to each segment). It would have been obvious to include this feature in the system taught by Bakshi and Ahearn to better monitor and identify the available nodes and paths within the network system.

In considering claim 8, both Bakshi and Ahearn further disclose that determining the path comprises:

Storing the shortest path between the start node and the end node in memory as the current shortest path; and if the type of path of interest is the shortest path, recursively determining paths between the nodes based on the type of connector of interest, such that when a newly determined path between the nodes is shorter than the current shortest path, the current shortest path is replaced with the newly determined path (Bakshi, col. 5, lines 1-15; Ahearn, col. 8, lines 2-8, 25-32; col. 12, lines 13-21, 30-50, wherein updates are made to the topology information when changes in the network occur).

In considering claim 9, Ahearn discloses a system for determining paths between a start node ("workstation") and an end node ("server") of a communication network (col. 6, lines 31-33), the network being formed of sub-networks ("subnets"), the sub-networks having connectors and segments, the start node and end node each

corresponding to one of the connectors (col. 5, lines 24-27; col. 12, lines 13-21; Fig. 8), comprising:

A processor (inherent);

A discovery mechanism associated with the processor, the discovery mechanism configured to generate and store topology data specifying connectors and segments of a communication network (col. 7, lines 12-17); and

A layout mechanism associated with the processor and interfaced with the discovery mechanism, the layout mechanism configured to receive the topology data from the discovery mechanism, the layout mechanism configured to drive a display based upon the topology data (Figs. 4 & 8),

Said discovery mechanism being configured to determine a shortest probable path between a start node and an end node based upon said topology data (Figs. 4 & 8, depicting the viewable display which shows the connectivity data of the network according to topology information; col. 8, lines 1-11, "view the OSPF area topology").

However, Ahearn does not explicitly disclose first that the shortest probable path is defined by a path with a lowest hop count between the start node and the end node, and second that the shortest path is determined by using only topology data. Nonetheless, both of these features are well known, as evidenced by Bakshi. In a similar art, Bakshi discloses a system for determining the shortest path between devices on a network, wherein the shortest path may be determined based on a hop count ("hop count," col. 1, lines 42-43), and wherein the shortest path is determined based only on the topology information (col. 4, lines 38-40; col. 5, lines 1-5). Given the teaching of

Bakshi, a person having ordinary skill in the art would have readily recognized the desirability and advantages of determining a shortest path via a hop count, because shorter hop count in general signifies a shorter path, and to use only the topology information in selecting a shortest path, to avoid the need to actively run an OSPF procedure for every connection attempt. Therefore, it would have been obvious to use the hop count and topology look-up features taught by Bakshi in the routing system taught by Ahearn.

In considering claim 13, Ahearn further discloses that the probable path mechanism receives information regarding a type of connector of interest, and determines a shortest probable path between the nodes based on this information (col. 7, line 60 – col. 8, line 10).

***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Notably, Applicant has argued that Ahearn alone does not disclose certain features of the claimed invention. However, none of the claims are currently rejected over Ahearn alone. Therefore, Applicant's arguments are moot.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is (703) 306-3041. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (703) 305-4792. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

For all correspondences: (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Bradley Edelman

BE
July 2, 2004